

NEW SPECIES OF *PEDIANA* (HETEROPODIDAE: ARANEAE) SIMON FROM CENTRAL AND NORTHERN AUSTRALIA.

DAVID B. HIRST

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Four new species of *Pediana* Simon, *P. longbottomi*, *P. paradoxa*, *P. temmei* and *P. webberae*, are described from central and northern Australia. All exhibit characters which uniquely bond them as a further group within the genus *Pediana*. A new locality record for *P. regina* (L. Koch) and revised key to species are given.

D. B. Hirst, South Australian Museum, North Terrace, Adelaide, South Australia, 5000. Manuscript received 1 March 1996.

The genus *Pediana* Simon, 1880 was revised by Hirst (1989) with the redescription of the four known Australian species and later Hirst (1995) described a further species from one female from south-western Northern Territory. Material received since from the Northern Territory Museum, the Western Australian Museum and other material discovered in or collected recently for the South Australian Museum collection, contained four more species of *Pediana* remarkably distinct from those previously known.

Pediana was considered (Hirst 1989) to have a relatively high convex carapace, a pointed dorsal ridge on the male tibial apophysis, and female spermathecal sacs, when present, extended posteriorly under the fossa. Unique characters found in the new species, males sometimes lacking a pointed dorsal ridge on the tibial apophysis, a low posterior carapacial area sometimes present in the female, anteriorly directed spermathecal sacs of known females and spinnerets positioned subapically on a more elongate abdomen of all species have necessitated amendments to the generic diagnosis (see below). A new group, the *webberae* group, is erected for the new species and contains two species-pairs.

MATERIALS AND METHODS

Leg indices are leg length excluding coxa and trochanter divided by length of carapace. The penultimate stage and poor condition of the male of *P. webberae* do not allow for adequate comparative measurements and these are kept to a minimum. Other materials and methods are given in Hirst (1989, 1991). Abbreviations. *Institutions*:

NTM, Northern Territory Museum; **SAMA**, South Australian Museum, Adelaide; **SMF**, Natur-Museum Senckenberg, Frankfurt, Germany; **WAM**, Western Australian Museum, Perth. *Morphology*: AE, anterior eyes; PE, posterior eyes; MOQ, median ocular quadrangle; L or l, length; W, width. Other abbreviations used in description are standard for the Araneae.

SYSTEMATICS

Genus *Pediana* Simon

Pediana Simon, 1880: 258. For full synonymy list see Hirst 1989: 113.

Diagnosis

Carapace relatively high; flat above and declivity posterior to fovea or rarely with declivity anterior of fovea. ALE largest, occasionally males with AME largest; AE row recurved, PE row procurved; lateral eyes raised on low common mound; MOQ longer than wide or occasionally wider than long. Legs 2143 or 1243, anterior pairs being subequal. Abdomen oval with spinnerets apical or elongate and reaching more than twice as long as wide, obtusely pointed posteriorly with spinnerets subapical at least in females. Male palp with embolus coiled once or two and a half or five times, coil stack wide and of low profile. Palpal tibia with large retrolateral distal apophysis having a raised dorsal basal ridge or ridge not raised but extended dorsally on tibia. Spermathecal sacs projecting to posterior or to anterior, or absent.

REVISED KEY TO SPECIES OF *PEDIANA* OF AUSTRALIA

Female

- 1 — Abdomen elongate, bluntly pointed posterior, spinnerets subapical (Fig. 3) 2
 — Abdomen oval, rounded posterior, spinnerets apical 4
- 2 — Carapace relatively flat; spermathecal sacs originate from posterior of fertilization duct 3
 — Carapace with steep declivity anterior of fovea; spermathecal sacs originate anterior of fertilization duct *webberae*, sp. nov.
- 3 — Dorsal carapacial and abdominal stripe lacking (Fig. 15) *temmei*, sp. nov.
 — Dorsal carapacial and abdominal stripe present (Fig. 20) *paradoxa*, sp. nov.
- 4 — Anterior tibiae usually with 1 dorsal spine and 2 ventral spine pairs; insemination ducts lightly sclerotised with 2–4½ coils, spermathecal sacs present 5
 — Anterior tibiae usually with 2 dorsal spines and 3 ventral spine pairs; insemination ducts heavily sclerotised with 5 coils, spermathecal sacs absent 7
- 5 — Venter of abdomen with yellow setae, bases of femora not black ventrally 6
 — Venter of abdomen with orange setae, bases of femora black ventrally
 *regina* (L. Koch)
- 6 — Leg femora conspicuously spotted, legs and body with variably coloured setae, epigynum small, insemination ducts with 2½ coils
 *occidentalis* Hogg
 — Leg femora inconspicuously spotted, legs and body with yellow-white setae, epigynum relatively large, insemination ducts with 4½ coils *mainae* Hirst
- 7 — Anterior femora with white spots; epigynum broad posteriorly *horni* Hogg
 — Anterior femora reddish ventrally; epigynum narrows posteriorly *tenuis* Hogg

Male

- 1 — Embolus with 1–1¼ coils 2
 — Embolus with 2½ coils or more 3

- 2 — Carapace 3–4x longer than high with slight declivity anterior of fovea (Fig. 7); tibial apophysis with raised dorsal ridge (Fig. 9)
 *webberae*, sp. nov.
 — Carapace 5x longer than high, flat (Fig. 10); tibial apophysis lacking raised dorsal ridge at base of apophysis (Fig. 13)
 *longbottomi*, sp. nov.
- 3 — Embolus with 2½–2¾ coils 4
 — Embolus with 5 coils 7
- 4 — Abdomen elongate (L = 2x W); median apophysis extends away from base of embolus (Fig. 18) 5
 — Abdomen rounded or oval (L = 1½x W); median apophysis adjacent base of embolus (Hirst 1989; fig. 6) 6
- 5 — Dorsal carapacial and abdominal stripe lacking; dorsal ridge of tibial apophysis with apex curved (Fig. 19) *temmei*, sp. nov.
 — Dorsal carapacial and abdominal stripe present; dorsal ridge of tibial apophysis with apex straight (Fig. 25)
 *paradoxa*, sp. nov.
- 6 — Embolic base with small median apophysis *regina* L. Koch
 — Embolic base with broad median apophysis *occidentalis* Hogg
- 7 — Dorsal ridge of tibial apophysis with apex curved *horni* Hogg
 — Dorsal ridge of tibial apophysis with apex straight *tenuis* Hogg

Pediana webberae, sp. nov.
 (Figs 1–9, 26; Table 1)

Types

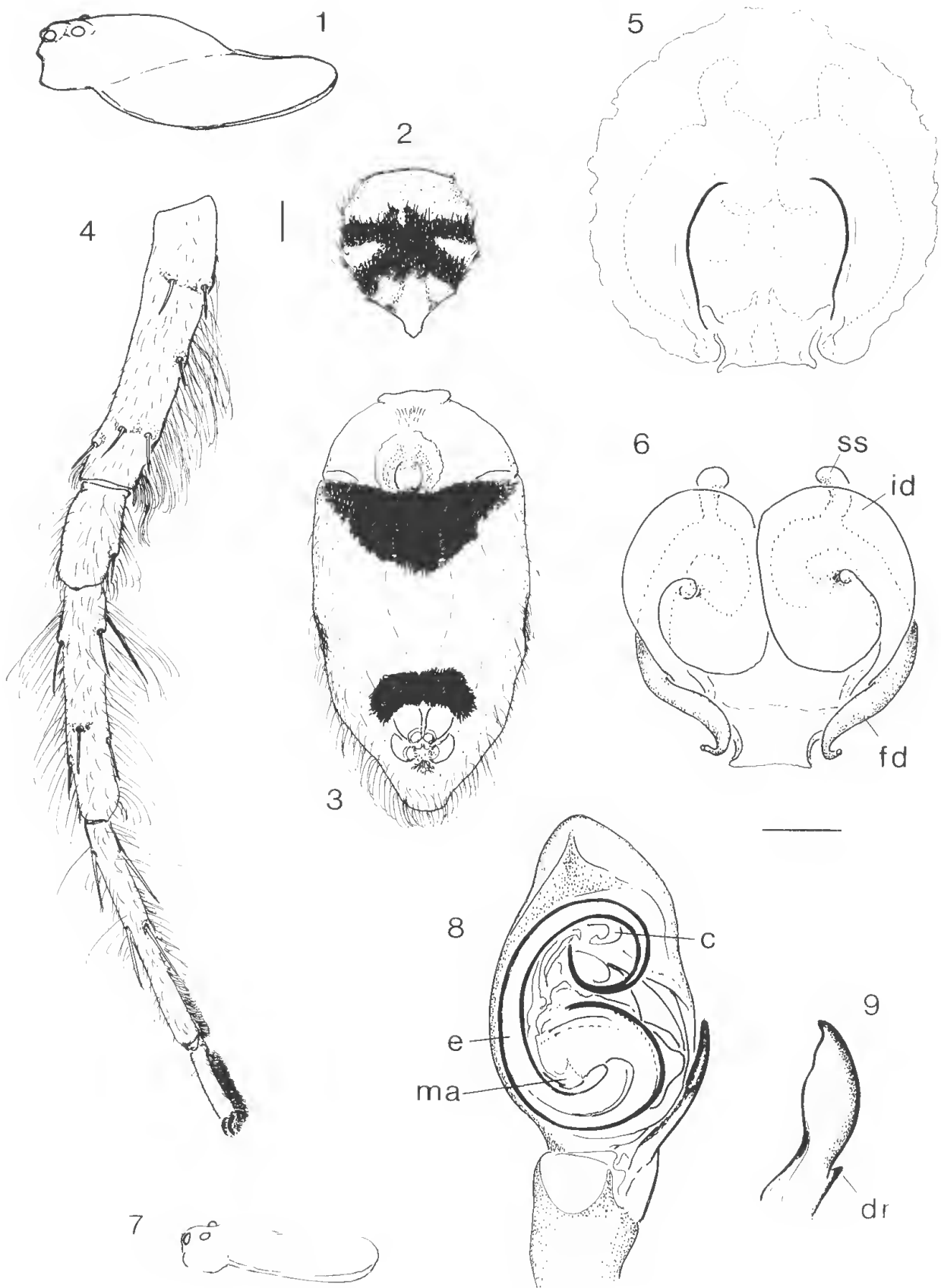
Holotype ♀, Darwin, (12°27'S 130°50'E), Northern Territory, Dec. 1992, J. Webber, NTM A–81.

Non-type

♂, no data, SAMA N1994649.

Diagnosis

Colour and pattern typical for *Pediana* species. Carapace with declivity anterior of fovea; AME of male may be largest; posterior eyes relatively small, subequal; MOQ wider than long. Leg spine bases raised on low mound at least on femora;



FIGURES 1–9. *Pediana webberae*, sp. nov. 1–6, holotype female. 1, carapace, lateral; 2, sternum; 3, abdomen, venter; 4, leg IV, right dorsal; 5, epigynum, cleared; 6, vulva, dorsal. 7–9, male. 7, carapace, lateral; 8, left palp cymbium and tibia, ventral; 9, tibial apophysis, retrolateral. Scale lines: Figs 1–4, 7, 1mm, Figs 6, 8, 9, 0.5mm. c, conductor; dr, dorsal ridge; e, embolus; fd, fertilization duct; id, insemination duct; ma, median apophysis; ss, spermathecal sac.

posterior legs with brushes of long setae proventrally. Male embolus with just over 1 complete coil. Female epigynum relatively large, spermathecal sacs project anteriorly, insemination ducts with $1\frac{1}{4}$ lightly sclerotised coils.

Description

Female. CL 7.48, CW 7.47. AL 9.15, AW 4.90.

Colour in alcohol: Carapace red-brown, striae darker, numerous short black setae; caput dark in ocular area, white and yellow setae; clypeus with orange setae. Chelicerae red-brown, long yellow setae, basal half with short white setae. Maxillae and labium black but anterior margin pale. Sternum; anterior orange with long orange setae, medially with black 'x' pattern (Fig. 2), posterior tip yellow. Legs yellow, femora I–III ventrally with 2 rows of white spots formed of short adpressed setae; posterior legs with numerous long setae on tibia III, femur, tibia and metatarsi IV. Abdomen dorsum and venter (Fig. 3) typical.

Eyes: AME 0.48. AME: ALE: PME: PLE = 1: 1.04: 0.67: 0.69. Interspaces; AME–AME 0.65, AME–ALE 0.50, PME–PME 1.98, PME–PLE 1.69, AME–PME 1.35, ALE–PLE 1.21. MOQ, aw: pw: l = 2.65: 3.31: 3.02. Width of clypeus to AME 0.61.

Labium: L 1.02, W 1.47. Sternum: L 3.79, W 3.08.

Legs: (Table 1) Anterior leg indices; I = 3.6, II = 3.5.

Spination: As for the *P. horni* group but, tibiae III and IV have 2 dorsal spines, tibia IV lacks the distal ventral spine pair.

Epigynum: Lateral rim rounded anteriorly; anterior of fossa recessed. Vulva with small spermathecal sacs projecting from anterior of fertilization duct (Fig. 5), insemination ducts with $1\frac{1}{4}$ lightly sclerotised coils (Fig. 6).

Male. CL 4.78, CW 4.41. AL 7.65, AW 3.00.

Outer skin lifted in readiness for the sloughing process. Most setae lost from outer skin. Caput lower with only a gradual declivity to fovea (Fig. 7); AME appear largest on adult skin but

asymmetrical due to softness; posterior of abdomen less rounded than in the female, extending in a point beyond spinnerets; leg femora not as obviously tuberculate.

Colour in alcohol: As in female but faded. Corresponding areas of black on female are brown on the male.

Palps: Unhardened pre-moult condition, although fully formed under epidermis final shape and position of various sclerites within cymbium may not be complete; conductor originates prodistally as in the *regina* group but instead of having two coils is short with a curled tip; embolus with a little over 1 coil (Fig. 8); tibial apophysis more than 2x length of tibia, broad with straight pointed dorsal ridge on base (Fig. 9).

Distribution

Known only from Darwin, Northern Territory (Fig. 26).

Remarks

The male is excluded from the type material. It is assumed to have been collected at the beginning of this century and is in poor condition. It is penultimate but removal of the outer epidermis reveals a soft, yet apparently fully formed adult beneath. Although the carapace shape and tuberculate leg femora closely associate the male with the female of *P. webberae* it is not unequivocally conspecific. The male of *P. webberae* differs from *P. longbottomi* in the carapace shape, the tuberculate leg femora, in having a pointed dorsal ridge at the base of a broader palpal tibial apophysis and smaller venter badge markings. *P. webberae* further differs from *P. temmei* and *P. paradoxa* in the male embolic coils and female spermathecal sacs.

Etymology

The species is named after Ms J. Webber (NTM), collector of the holotype.

Pediana longbottomi, sp. nov.

(Figs 10–13, 26; Table 2)

Type

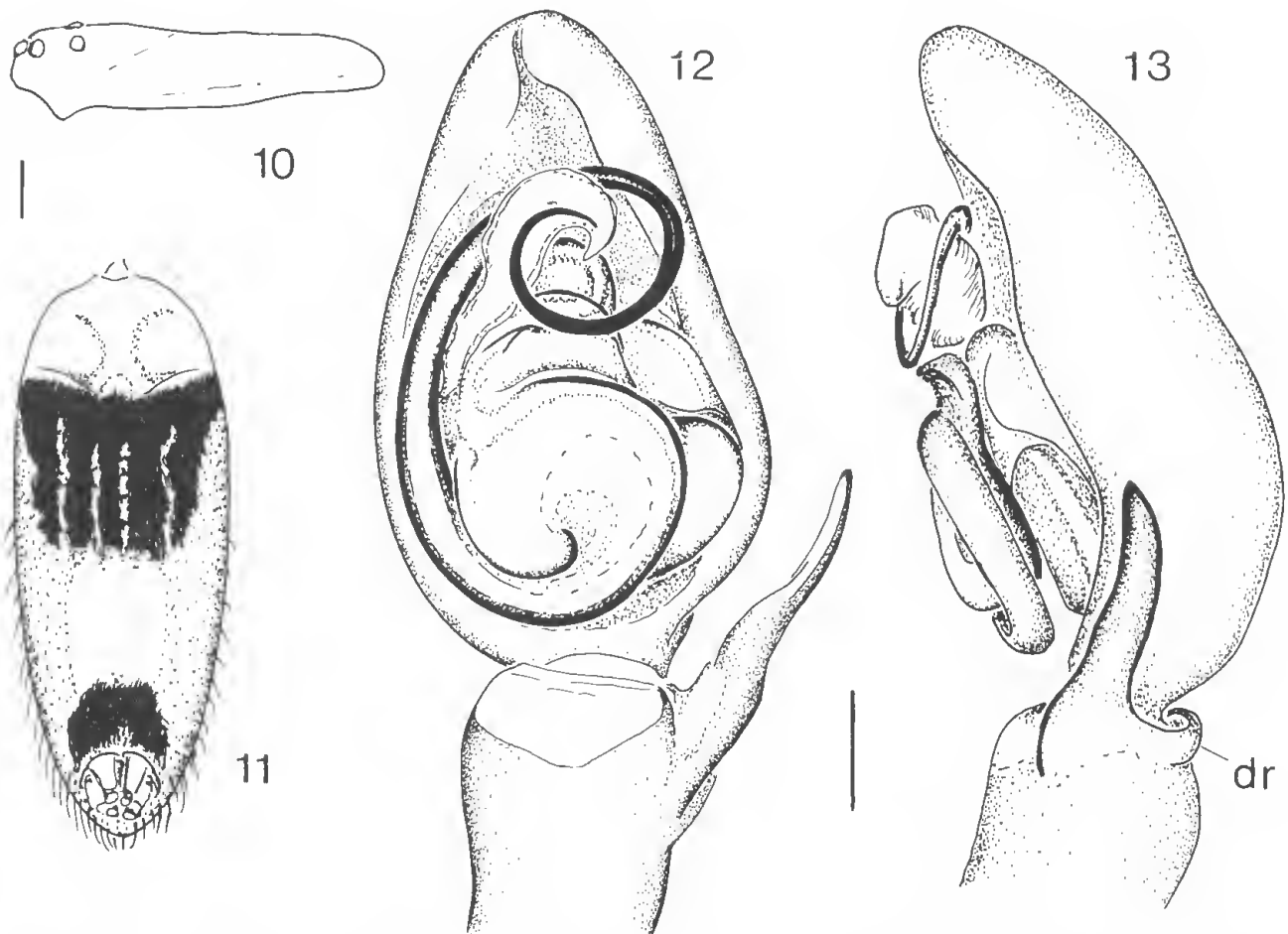
Holotype ♂, Drysdale River Stn (15°42'S 126°22'E), Xavier River area, Western Australia, 8–12.ix.1993, A.F. Longbottom (S.1366), WAM 94/1673.

Non-types

Juvenile, same data as holotype but (S.1367),

TABLE 1. Leg measurements of *Pediana webberae*, sp. nov. Values are for holotype female

	Leg 1	Leg 2	Leg 3	Leg 4	Palp
Femur	8.12	8.09	5.79	7.64	2.85
Patella	3.24	3.23	2.62	2.71	1.42
Tibia	6.45	6.29	4.78	5.69	1.51
Metatarsus	6.58	6.22	3.89	5.88	—
Tarsus	2.21	2.14	1.73	1.96	2.20
Total	26.60	25.97	18.81	23.88	7.98



FIGURES 10–13. *Pediana longbottomi*, sp. nov. Male. 10, carapace, lateral; 11, abdomen, venter; 12–13, left palp cymbium and tibia, 12, ventral; 13, retrolateral. Scale lines; Figs 10–11, 1mm, Figs 12–13, 0.5mm. dr, dorsal ridge.

WAM 94/1675; juv., same data as holotype but Diamond Waterhole, 1.viii.1993, amongst vegetation, (S.1311), WAM 94/1674.

Diagnosis

Male: Colour and pattern typical for *Pediana* species but venter with large black patches. Carapace flat. AME largest, PME relatively small. Leg femora not conspicuously tuberculate. Tibial apophysis relatively narrow with long low ridge extending to dorsal of tibia; embolus with 1/4 coil. Female unknown.

Description

Male. CL 6.03, CW 4.91. AL 8.92, AW 3.74.

Colour in alcohol: Carapace and chelicerae red-brown, short black, grey and orange setae, adpressed on carapace, upright on chelicerae. Maxillae and labium dark brown. Sternum dark brown but posterior tip pale. Legs brown; brown-black stout setae and adpressed fine white setae; spines on femora short, weak. Abdomen dorsally

typical; venter with large black patches (Fig. 11).

Eyes: AME 0.42. AME: ALE: PME: PLE = 1: 0.95: 0.69: 0.79. Interspaces; AME–AME 0.36, AME–ALE 0.07, PME–PME 0.98, PME–PLE 1.26, AME–PME 1.02, ALE–PLE 1. MOQ, aw: pw: 1 = 2.36: 2.36: 2.71. Width of clypeus to AME 0.60.

Labium: L 0.92, W 1.08. Sternum: L 3.01, W 2.43.

Legs: (Table 2) Anterior leg indices; I = 5.6, II = 5.5.

TABLE 2. Leg measurements of *Pediana longbottomi*, sp. nov. Values are for holotype male

	Leg I	Leg 2	Leg 3	Leg 4	Palp
Femur	10.08	9.92	6.89	9.78	2.16
Patella	3.16	3.13	2.43	2.55	1.03
Tibia	9.03	9.04	6.19	8.09	1.22
Metatarsus	8.81	8.45	5.06	8.82	–
Tarsus	2.60	2.75	1.82	2.27	2.34
Total	33.68	33.29	22.39	31.51	6.75

Spination: As for the *P. horni* group, but tibia IV lacking the distal ventral spine pair.

Palps: Embolus with 1¼ coil (Fig. 12), embolic base with high distal ridge; tibial apophysis with low ridge extending to dorsal of tibia (Fig. 13).

Distribution

Known only from Drysdale River Station in Western Australia (Fig. 26).

Remarks

P. longbottomi differs from all known male *Pediana* in lacking a sharply raised dorsal ridge to the tibial apophysis base. It further differs from *P. webberae* in the male tibial apophysis being narrower, in having the embolic base extended distally and larger ventral abdominal black patches. In the male of *P. longbottomi* the posterior of the abdomen (Fig. 11) is less extended and the legs are not so markedly tuberculate as in *P. webberae*. However, two juveniles from the same locality possess those characters indicating that they may also be present in the female *P. longbottomi*. Those juveniles do not have a high caput with steep declivity anteriorly to fovea, nor do they possess brushes of setae on leg IV.

Etymology

The species is named after Mr A. F. Longbottom who collected the material.

Pediana temmei, sp. nov.

(Figs 14–19, 26; Table 3)

Types

Holotype ♂, 9.5 km SSE Ampeinna Hills, (27°09'S 131°09'E), South Australia, 22.iii.1995, D. Hirst, SAMA N19951.

Allotype ♀, 11.5 km SSW of Ampeinna Hills, (27°11'S 131°05'E), South Australia, 24.iii.1995, D. Hirst, SAMA N19952.

Paratypes; ♀, same data as allotype, SAMA N19953; 2 ♂, 10 km E of Ampeinna Hills, (27°05'S 131°13'E), South Australia, 23.iii.1995, D. Hirst, SAMA N19954–5.

Diagnosis

Colour grey or grey-black, venter of abdomen lacks conspicuous black patch anterior to spinnerets. Carapace highest posteriorly. ALE largest. Leg femora spines short except distally. Abdomen extended posteriorly beyond spinnerets in female. Male embolus with 2½ coils; dorsal

ridge of tibial apophysis with curved apex. Female spermathecal sacs small, projecting anteriorly from beneath anterior sector of fossa; insemination ducts with 2¼ lightly sclerotised coils.

Description

Male. CL 4.34, CW 3.76. AL 4.31, AW 2.10.

Colour in alcohol: Carapace brown, ocular area darker, numerous uniform short black, white and orange setae. Chelicerae red-brown, long white setae. Maxillae and labium brown-black. Sternum; brown with black suffusion, grey setae. Coxae and most part of legs yellow-brown with black suffusion, legs III darker; anterior femora ventrally with white spots formed of short adpressed setae; long setae on legs not numerous. Abdomen somewhat shrunken; venter with black patch posterior to epigastric furrow, few black spots medially, suffusion anterior of spinnerets.

Eyes: AME 0.34. AME: ALE: PME: PLE = 1: 1.15: 0.82: 0.88. Interspaces; AME–AME 0.32, AME–ALE 0.12, PME–PME 1.12, PME–PLE 1.41, AME–PME 1.24, ALE–PLE 1.12. MOQ, aw: pw: l = 2.32: 2.76: 3.03. Width of clypeus to AME 0.59.

Labium: L 0.65, W 0.74. Sternum: L 2.14, W 1.78.

Legs: (Table 3) Anterior leg indices; 6.

Spination: As in *P. longbottomi* but 1 spine on anterior tibiae.

Palps: Embolus with 2½ coils (Fig. 18); tibial apophysis narrow, dorsal ridge with curved point on apex (Fig. 19).

Female. CL 6.41, CW 5.38. AL 9.96, AW 4.89.

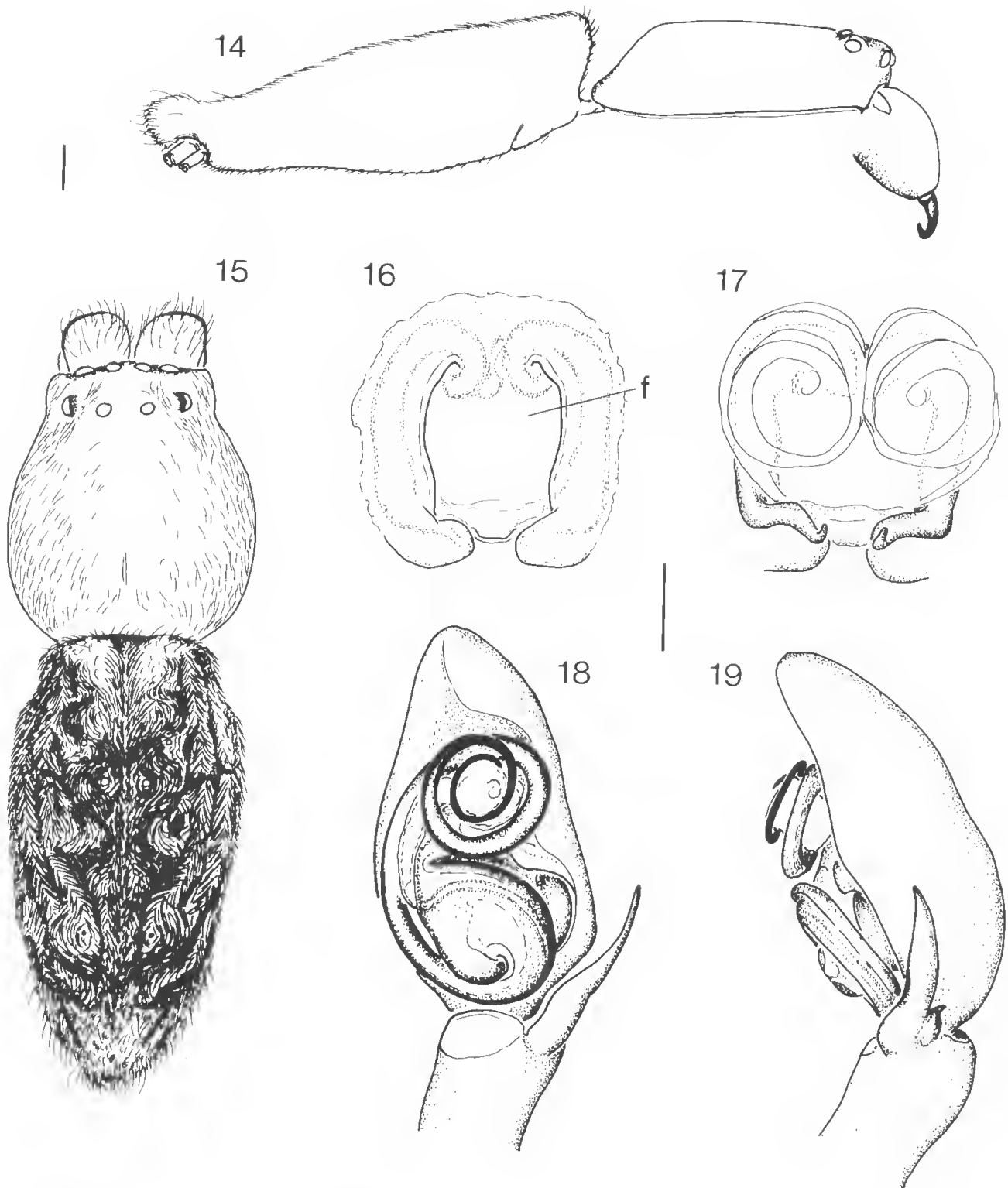
Colour in alcohol: As male but carapace with dense setae; white setae anterior to and posterior of AME. Chelicerae dark brown with short setae present on basal half. Maxillae and labium darker. Abdomen with dense short setae dorsally as on carapace but arranged in opposing directions to form a pattern (Fig. 15); venter with dull orange-brown badge with larger black patch posterior to epigastric furrow and more spots of black setae.

Eyes: AME 0.44. AME: ALE: PME: PLE = 1: 1.20: 0.91: 0.91. Interspaces; AME–AME 0.41, AME–ALE 0.18, PME–PME 1.18, PME–PLE 1.55, AME–PME 1.39, ALE–PLE 1.23. MOQ, aw: pw: l = 2.41: 3.00: 3.23. Width of clypeus to AME 0.73.

Labium: L 1.00, W 1.23. Sternum: L 2.94, W 2.38.

Legs: (Table 3) Anterior leg indices; 3.4.

Spination: As male but patellae III and IV lack a prolateral spine.



FIGURES 14–19. *Pediana temmei*, sp. nov. 14–15, female abdomen and carapace, 14, lateral, 15, dorsal; 16–17, female epigynum, 16, cleared, ventral, 17, vulva, dorsal; 18–19, male. Left palp cymbium and tibia, 18, ventral; 19, retrolateral. Scale lines; Figs 14–15, 1mm, Figs 16–19, 0.5mm. f, fossa.

Epigynum: Fertilization ducts sharply bent posteriorly (Fig. 17). Vulva with small spermathecal sacs rising from fertilization duct

just under anterior margin of fossa and projecting anteriorly (Fig. 16), insemination ducts with $2\frac{1}{4}$ lightly sclerotised coils (Fig. 17).

TABLE 3. Leg measurements of *Pediana temmei*, sp. nov. Values are for holotype male with allotype female in parentheses

	Leg I	Leg 2	Leg 3	Leg 4	Palp
Femur	7.96 (6.78)	7.91 (6.79)	5.48 (4.74)	7.95 (6.89)	1.62 (2.15)
Patella	2.29 (2.69)	2.29 (2.72)	1.78 (2.13)	1.93 (2.22)	0.76 (1.11)
Tibia	6.73 (5.12)	6.71 (5.16)	4.19 (3.40)	6.16 (4.81)	0.88 (1.27)
Metatarsus	6.99 (5.28)	6.80 (5.11)	4.04 (3.29)	7.14 (5.35)	— —
Tarsus	2.01 (1.69)	2.02 (1.70)	1.43 (1.25)	1.82 (1.70)	1.83 (2.08)
Total	25.98 (21.56)	25.73 (21.48)	16.92 (14.81)	25.00 (20.97)	5.09 (6.61)

Variation

Carapace length of paratype males, 4.59 and 4.23; of paratype female 6.15.

Distribution

Known only from undulating sandplain country of the Great Victoria Desert in north-western South Australia (Fig. 26).

Remarks

Male *P. temmei* lack a posteriorly extended abdomen, while that of the female is only slightly extended (Fig. 14). *P. temmei* differs from all other *Pediana* species in lacking a 'typical' dorsal stripe. *P. temmei* is similar to *P. horni* in having a curved apical point on the dorsal ridge at the base of the male tibial apophysis but differs in embolic coiling as well as abdomen pattern.

Etymology

The specific epithet is used in recognition of the assistance and generosity given to the Arachnology Section by Dr Paul Temme, a member of the Waterhouse Club which supports the South Australian Museum.

Pediana paradoxa, sp. nov.

(Figs 20–26; Table 4)

Types

Holotype ♂, in *Hakea* nr rockhole, 18.5 km WNW Ungarinna Rockhole, (26°56'S 131°29'E), South Australia, 15.iii.1995, D. Hirst, SAMA N19956.

Allotype ♀, same data as holotype, SAMA N19957.

Diagnosis

Colour grey with black dorsal striping, venter lacks black patch anterior of spinnerets. Carapace highest posteriorly. ALE largest. Abdomen extended posteriorly beyond spinnerets. Male embolus with 2½ coils; dorsal ridge of tibial

apophysis with straight apex. Female spermathecal sacs small, projecting anteriorly from just outside anterior margin of fossa; insemination ducts with 2¾ lightly sclerotised coils.

Description

Male. CL 4.22, CW 3.78. AL 6.26, AW 2.70.

Colour in alcohol: Carapace brown, ocular area darker, numerous short black setae form a stripe medially, narrowly divided anteriorly by grey setae; laterals with adpressed grey-white setae. Chelicerae red-brown, long white setae. Maxillae and labium brown with dark brown suffusion. Sternum brown with darker suffusion, grey-white setae. Coxae and most parts of legs yellow-brown with blackish suffusion, legs III darker with numerous short black setae; anterior femora ventrally with white spots formed of short adpressed setae. Abdomen grey with numerous grey-white and golden setae. Black setae form a dorsal stripe broken medially and then wedge-shaped interspersed with golden setae; venter badge area yellow with black patch posterior to epigastric furrow, few grey spots medially, black suffusion anterior of spinnerets, patches of black and pale red suffusion lateral to badge area.

Eyes: AME 0.33. AME: ALE: PME: PLE = 1: 1.12: 0.85: 0.85. Interspaces; AME–AME 0.33, AME–ALE 0.09, PME–PME 1.27, PME–PLE 1.36, AME–PME 1.30, ALE–PLE 1.06. MOQ, aw: pw: l = 2.33: 2.97: 3.09. Width of clypeus to AME 0.67.

Labium: L 0.59, W 0.72. Sternum: L 2.14, W 1.78.

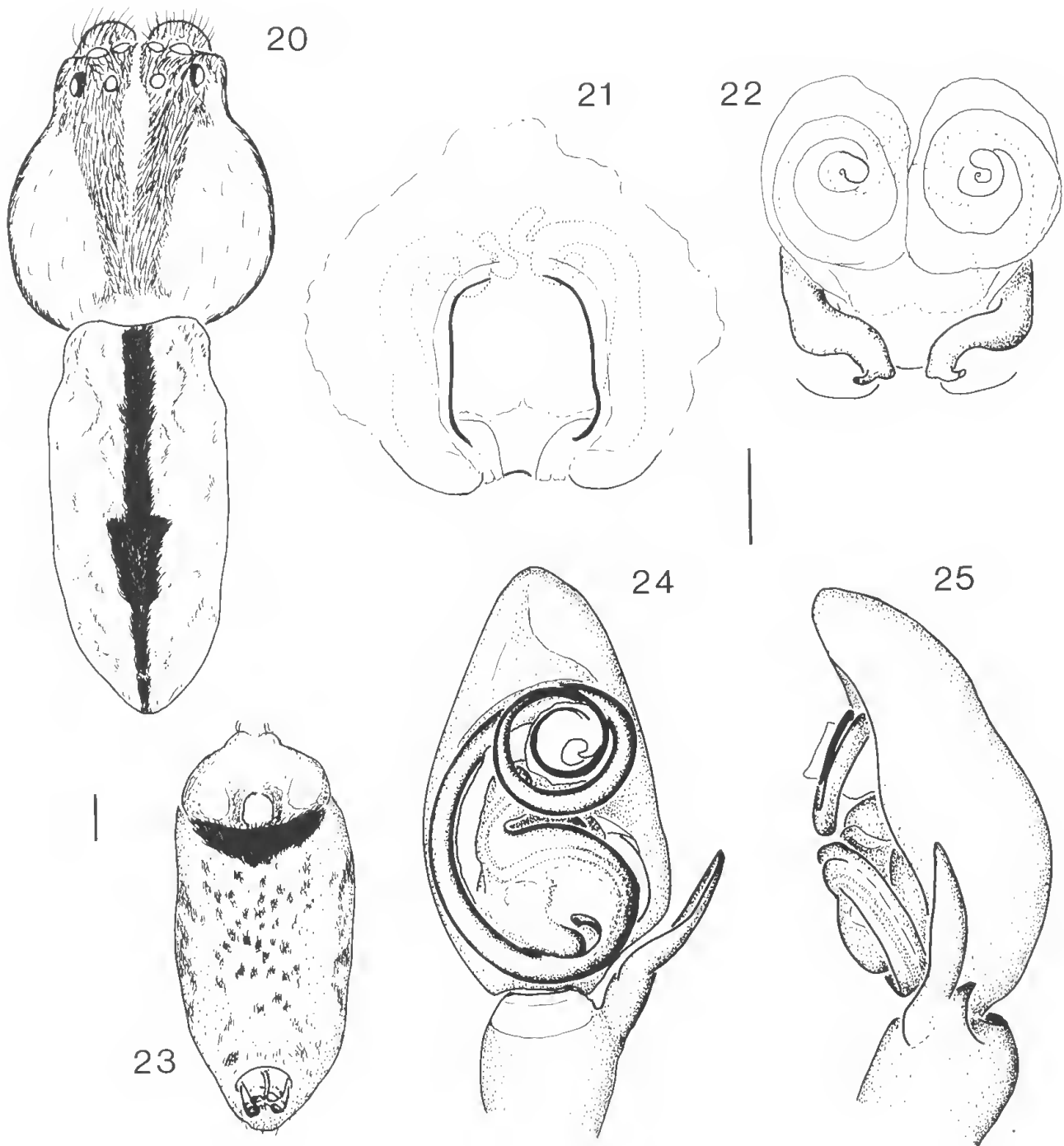
Legs: (Table 4) Anterior leg indices; 6.

Spination: As in *P. longbottomi* but patella IV lacks prolateral spine.

Palps: Embolus with 2½ coils (Fig. 24); tibial apophysis narrow, dorsal ridge with straight pointed apex (Fig. 25).

Female. CL 5.99, CW 5.28. AL 8.30, AW 3.75.

Colour in alcohol: As male but carapace with dense setae. Chelicerae with short orange setae on



FIGURES 20–25. *Pediana paradoxa*, sp. nov. 20, female abdomen and carapace, dorsal; 21, female abdomen, venter; 22–23, female epigynum, 22, cleared, ventral, 23, vulva, dorsal; 24–25, male, left palp cymbium and tibia, 24, ventral; 25, retrolateral. Scale lines; Figs 20–21, 1mm, Figs 22–25, 0.5mm.

basal half. Maxillae and labium brown with black suffusion. Abdomen (Fig. 20) with more numerous golden setae; venter with shiny black setae posterior to epigastric furrow; mixed white and red setae and spots of black setae (Fig. 21).

Eyes: AME 0.39. AME: ALE: PME: PLE = 1: 1.33: 0.92: 0.92. Interspaces; AME–AME 0.51,

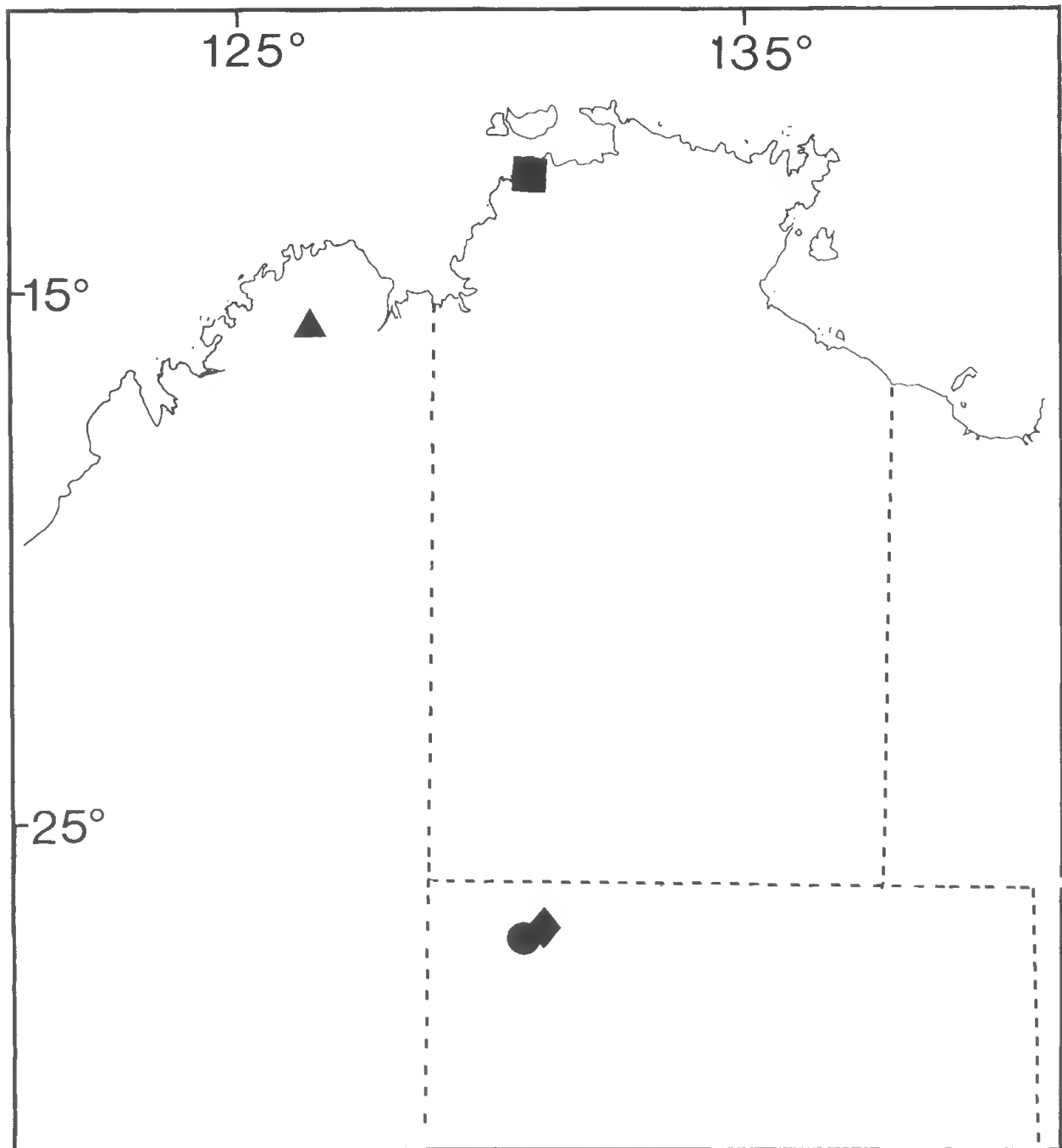
AME–ALE 0.02, PME–PME 1.31, PME–PLE 1.85, AME–PME 0.51, ALE–PLE 0.52. MOQ, aw: pw: l = 2.51: 3.15: 3.26. Width of clypeus to AME 0.77.

Labium: L 0.92, W 1.13. Sternum: L 2.82, W 2.23.

Legs: (Table 4) Anterior leg indices; 3.5.

TABLE 4. Leg measurements of *Pediana paradoxa*, sp. nov. Values are for holotype male with allotype female in parentheses

	Leg I	Leg 2	Leg 3	Leg 4	Palp
Femur	7.71 (6.83)	7.72 (6.82)	5.17 (4.72)	7.86 (6.94)	1.68 (2.03)
Patella	2.23 (2.64)	2.21 (2.61)	1.74 (2.09)	1.79 (2.10)	0.66 (1.05)
Tibia	6.76 (5.29)	6.65 (5.25)	4.01 (3.48)	6.04 (4.91)	0.89 (1.24)
Metatarsus	6.74 (4.87)	6.62 (4.88)	3.79 (3.03)	6.97 (5.31)	— —
Tarsus	1.83 (1.53)	1.81 (1.55)	1.40 (1.38)	1.82 (1.52)	1.74 (1.95)
Total	25.27 (21.16)	25.01 (21.11)	16.11 (14.70)	24.48 (20.78)	4.97 (6.27)

FIGURE 26. Distribution of species of the *Pediana webberae* group: *P. webberae* ■; *P. longbottomi* ▲; *P. temmei* ●; *P. paradoxa* ◆.

Spination: As male but tibia II with 1 dorsal spine and patella IV with prolateral spine.

Epigynum: Similar to *P. temmei* but narrower; vulva with longer spermathecal sacs (Fig. 22), insemination ducts with $2\frac{3}{4}$ lightly sclerotised coils (Fig. 23).

Distribution

Known only from undulating sandplain country of the Great Victoria Desert in north-western South Australia (Fig. 26).

Remarks

P. paradoxa is most similar to *P. temmei* from which it differs in colour, in the male tibial apophysis having a straight-edged triangular shaped apex to the dorsal ridge, in the embolic base and female spermathecal sacs. Both *P. paradoxa* and *P. temmei* could be confused with *P. occidentalis* which has similar coiling of the male embolus and female insemination ducts, but *P. occidentalis* has an oval shaped abdomen, apical spinnerets, differences in the male embolic base and large posteriorly directed female spermathecal sacs.

Etymology

The specific epithet is taken from the Latin (paradox) and reflects both the puzzling similarity between this species and *P. temmei* and their 'side-by-side' distribution.

Pediana regina L. Koch

New Record

♀, W.A., King David River area, Drysdale River Stn (15°42'S 126°22'E), 15.viii.1993, A.F. Longbottom (S.1282), on tree, WAM 94/1695.

Apart from the longer spermathecal sacs of this female it cannot be separated from *P. regina*. All previous records are from eastern Australia, however Strand (1913) described a male and a penultimate female as a variety from Central Australia. Hirst (1989) placed those specimens in *P. horni* (Hogg) based on the description given by Strand. The specimens (in SMF) have since been seen and indeed belong to *P. horni*.

DISCUSSION

The female of *P. webberae* has a relatively high caput, as is usual for previously known species of the genus, but which differs markedly in having a steep declivity to a low cephalic portion (Fig. 1),

a modification of the cephalothorax unknown in an Australian heteropodid. However, the carapace of the male *P. webberae* has but a gradual declivity (Fig. 7) more comparable with that of its sister-species, *P. longbottomi* (Fig. 10). Forward projection of the spermathecal sacs in the female is not uncommon in the heteropodids as it occurs in *Zachria* L. Koch (Hirst 1991) and *Typostola* Simon (Hirst in prep.). However, in those species the spermathecal sacs originate from the fertilization ducts after the latter have curved into the fossa cavity and rise from the posterior side of the curve. The spermathecal sacs then arc to the anterior. While the spermathecal sacs of *P. temmei* and *P. paradoxa* rise from the fertilization ducts as they curve under the fossa (Figs 16, 22) nearer to the 'normal' position seen in most Australian Deleninae genera which possess spermathecal sacs, in *P. webberae* the spermathecal sacs originate before the fertilization ducts curve to enter the fossa cavity (Figs 5, 6). In all new species the abdomen is more elongate and extends posteriorly beyond the spinnerets (Fig. 3). Subapical spinnerets are also known in one species of *Delena* Walckenaer but which has an oval abdomen (pers. obs.). Subapical spinnerets have not previously been recorded in the Heteropodidae to my knowledge.

Further differences in *P. webberae* and *P. longbottomi* are not unique but noteworthy. Firstly, the setose posterior legs of the female *P. webberae* are distinctive (the poor condition of the only known male of this species excludes consideration here) having a brush-like appearance proventrally on the femur and tibia of leg IV and to some degree on the tibia of leg III. Although species of the *P. horni* group also have long setae on the ventral surface of leg IV (Hirst 1989) these setae are sparse. However long setae are more numerous on anterior legs of *P. tenuis* Hogg. Secondly, an elevation proximal to, and including the base of each leg spine, gives a tuberculate appearance (Fig. 4). This is most noticeable on the femora of *P. webberae* and can be seen in the male of *P. longbottomi* to a lesser degree. Lastly, the posterior eyes are smaller than in other species and, as the width of the posterior row is relatively the same, posterior eye interspaces are greater. Furthermore, the AME are largest in the male of *P. longbottomi*. Resolution of the AME size of the male *P. webberae* (see earlier) must await the availability of further material but certainly the AME of *P. webberae* are relatively larger than those of other known female *Pediana*.

Insemination ducts of the female and embolus of the male *P. webberae* have little more than one coil (Figs 6, 8) as in the embolus of the male *P. longbottomi*. Both are also similar in having the abdomen produced well beyond the level of the posterior spinnerets, in the carapace being low posteriorly (Fig. 10) and in the somewhat tuberculate legs. Males have a small embolic base and a relatively large subtegulum which, when viewed ventrally, is more exposed than in *P. temmei* and *P. paradoxa* and the *regina* group. However, carapace shape (Fig. 14) and coiling in the genitalia of the sister-species *P. temmei* and *P.*

paradoxa are most similar to the *regina* group but both are more easily grouped with *P. webberae* and *P. longbottomi* in having anteriorly directed spermathecal sacs, an elongate abdomen and subapical spinnerets.

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